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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/899,895	NOURBAKHSH ET AL.	
	Examiner	Art Unit	
	Kalyan K. Deshpande	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-9,13-17,20-22,26,27,30,31,33-36 and 40-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7-9,13-17,20-22,26,27,30,31,33-36 and 40-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Introduction

1. The following is a non-final office action in response to the communications received on May 21, 2007. Claims 1-3, 7-9, 13-17, 20-22, 26-27, 30-31, 33-36, and 40-59 are pending in this application.

Examiner's Note

2. Examiner notes that the claims presented in this response from Applicants are not in compliance with the rules set forth in the 37 C.F.R. 1.121 or 1.4. Specifically, the claims have been presented with incorrect claims status identifiers. For example, claim 15 is being presented as "currently amended" where no amendments to the claims are found and claim 16 is being presented as "previously presented" however has substantial amendments. Examiner is assuming Applicants inadvertently switched the modifiers between claims 15 and 16 for the purpose of compact patent prosecution. However, Applicants should note that future responses should set forth the correct claim status identifiers or such an amendment will be deemed as non-compliant with 37 C.F.R. 1.121 and 1.4.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 21, 2007 has been entered.

Response to Amendments

4. Applicants' amendments to claims 1, 16, 30, and 54 are acknowledged. Per Applicants' amendments, Examiner withdraws the previously asserted claim objections.

Response to Arguments

5. Applicants' arguments filed on May 21, 2007 have been fully considered but are not found persuasive in part and are found persuasive in part. Applicants argue i) Claims 53 and 54 are not indefinite, ii) Stuart fails to teach "receiving a definition for each of a plurality of agent profiles...wherein the definition includes...at least one attribute specifying an amount of change in the number of agents in the group during a specified time period", iii) Stuart and O'Brien fail to teach "calculating an effect of adding the first agent as if the first agent is the only agent being added", and iv) O'Brien cannot be properly combined with Stuart. Argument i., claims 53 and 54 satisfy 35 U.S.C. 112 2nd paragraph, is found persuasive per Applicants' remarks and therefore the 35 U.S.C. 112 2nd paragraph rejections are withdrawn. Arguments ii-iv are not found persuasive and are discussed below.

In response to Applicants' argument Stuart fails to teach Stuart fails to teach "receiving a definition for each of a plurality of agent profiles...wherein the definition includes...at least one attribute specifying an amount of change in the number of agents in the group during a specified time period", as per claims 1, 16, and 30, Examiner respectfully disagrees. Stuart explicitly teaches "receiving a definition for each of a

plurality of agent profiles, comprising a group of agents that have similar characteristics, and wherein the definition includes the similar characteristics, including at least one skill, at least one performance measure, and at least one attribute specifying an amount of change in the number of agents in the group during a specified time period" (see column 7 lines 53-67, column 8 lines 6-37, column 11 lines 36-54, and column 12 lines 21-67; where agent profiles are defined. Agent profiles contain agent cost profiles, agent education, and agent training records. These variables are summed in to work group of agent teams. A work group or agent team is a group of agents. These variables are the same as the agent's capabilities. Furthermore, a variable defining the composition of the group for a specified period of time can be defined. Specifically, a these variables can be monitored per work minute. Work team configurations are defined and received by the system to optimize them. Change to team sizes are determined using optimization techniques.). Applicants further argue that Stuart fails to teach "at least one attribute specifying a change in the number of agents in the group during a specified period of time", specifically because Stuart is concerned with per-agent data. However, Stuart explicitly teaches the optimization of the team sizes during a specified period of time (see column 8 lines 6-37; where team sizes have a variable that is optimized over a period of time.). Applicants allege "a description of a process which changes the number of agents in the group is not equivalent to a definition for an agent profile...". It is unclear from this argument exactly what Applicants are implying. It appears that Applicants are drawing a distinction between a "description of a process" and a "definition" of a process, however, have failed to explicitly describe what this

alleged distinction is. Applicants further argue that Stuart fails to explicitly teach the process is "received", however, Examiner again cites column 8 lines 6-37 where a workforce configuration is received prior to optimization

In response to Applicants' argument Stuart and O'Brien fail to teach "calculating an effect of adding the first agent as if the first agent is the only agent being added", as per claims 1, 16, and 30, Examine respectfully disagrees. Stuart explicitly teaches "calculating an effect of adding the first agent as if the first agent is the only agent being added, wherein adding the first agent includes distributing the available work associated with the first agent among the at least one work load" (see column 15 lines 44-67, column 16 lines 1-19, and column 17 lines 14-30; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Each agent is iteratively added via linear optimization to determine whether the capacity allocation is optimal. This is the same as determining the effect of each agent being added. Furthermore, the linear optimization can be run from a baseline (of 0 agents) up to an optimal number. This accounts for the effects of adding a first agent and each subsequent agent.). As discussed in this rejection, linear optimization is performs optimization by incrementally adjusting variables until an optimal configuration is achieved. This process accounts for a first agent being added all the way until an optimal number of agents is determined. Applicants further argue that this linear optimization is a "global computation", which is distinct from "incremental" computation. As Applicants have agreed that Stuart teaches linear optimization, it is unclear as to how linear optimization, as described by

Applicants, ignores incremental computation and performs a "global computation". It is also unclear as to what Applicants mean by a "global computation". Linear programming, as known in the art, iteratively adds values in order to achieve an optimal result. Applicants are requested to clearly definite what they mean by a "global" computation" and how Stuart's linear programming differs from traditional linear programming.

In response to Applicants argument O'Brien cannot be properly combined with Stuart, Examiner respectfully disagrees. Applicants agree that both O'Brien and Stuart are concerned with the scheduling employees. Since both O'Brien and Stuart are concerned with managing and scheduling capacity constraints, one of ordinary skill in the art would be motivated to combine features of these two references in order to fill deficiencies in either reference.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-3, 7-9, 14-17, 20-22, 27, 30-31, 33-34, 36, 41-42, and 50-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuart et al. (U.S. Patent No. 6639982) in view of O'Brien (U.S. Patent No. 6587831).

As per claim 1, Stuart et al. teach:

A computer-implemented method for determining at least one effect of an agent staffing plan for a long-range period that is more than a month in the future, comprising:

Receiving a definition for each of a plurality of agent profiles, comprising a group of agents that have similar characteristics, and wherein the definition includes the similar characteristics, including at least one skill, at least one performance measure, and at least one attribute specifying an amount of change in the number of agents in the group during a specified time period, wherein there is an available work associated with each agent in each of the agent profiles (see column 7 lines 53-67, column 8 lines 6-37, column 11 lines 36-54, and column 12 lines 21-67; where agent profiles are defined. Agent profiles contain agent cost profiles, agent education, and agent training records. These variables are summed in to work group of agent teams. A work group or agent team is a group of agents. These variables are the same as the agent's capabilities. Furthermore, a variable defining the composition of the group for a specified period of time can be defined. Specifically, these variables can be monitored per work minute. Changes in team sizes are determined using optimization techniques. The system further accounts for specific work associated with each agent, i.e. what specific work the agent is capable of doing.);

Defining at least one work load (column 15 lines 24-43; where a work load is defined.); and

Calculating at least one effect of applying the plurality of agent profiles to the at least one work load while satisfying the at least one criteria, wherein the calculated effect includes at least one performance measure for the at least one work load (see column 15 lines 44-67 and column 16 lines 1-19; where an optimization algorithm is used to with inputs of the number of agents, the type of agents, and the call volume load based to determine the optimal number of agents, teams, tours, and costs to handle the load.),

Wherein the calculating comprises:

Adding a first agent from one of the agent profiles to a propose schedule, wherein the proposed schedule is for servicing at least one work load over a predefined time period (see column 15 lines 44-67, column 16 lines 1-19, and column 17 lines 14-30; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads.);

Calculating an effect of adding the first agent as if the first agent is the only agent being added, wherein adding the first agent includes distributing the available work associated with the first agent among the at least one work load (see column 15 lines 44-67, column 16 lines 1-19, and column 17 lines 14-30; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Each agent is iteratively added via linear optimization to determine whether the capacity allocation is optimal. This is the same as determining the effect of each agent being

added. Furthermore, the linear optimization can be run from a baseline (of 0 agents) up to an optimal number. This accounts for the effects of adding a first agent and each subsequent agent.);

Adding another agent from one of the agent profiles to the proposed schedule (see column 15 lines 44-67, column 16 lines 1-19, and column 17 lines 14-30; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads.);

Calculating an effect of adding the next agent taking into account the effect of having added the first agent (see column 15 lines 44-67, column 16 lines 1-19, and column 17 lines 14-30; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads.); and

Iteratively adding additional other agents from the agent profiles to the proposed schedule and iteratively calculating effects of adding the additional agents until the available work for every agent in the plurality of agent profiles has been distributed (see column 15 lines 44-67, column 16 lines 1-19, column 17 lines 14-30, and column 19 lines 40-67; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Linear programming optimization is the same as iterative summation.).

Stuart further explicitly teaches "specifying at least one criteria to be satisfied by a long-range staffing plan" (see column 6 lines 59-67 and column 7 lines 1-19; where

management specified criteria are used in the operation of the invention.). Stuart, however, fails to explicitly teach "wherein the plan covers a period that is more than a month in the future". O'Brien, however, in an analogous art explicitly teaches long-range staffing, where a time period is a month or greater (see column 4 lines 31-45; where a time period can be one week, one month, or any other time period.). The advantage of using a time period more than a month is that it enables users to plan for demand on a macro scale. It would have been obvious, at the time of the invention, to one of ordinary skill in the art to combine the feature of "the plan covers a period that is more than a month in the future" taught by O'Brien to Stuart in order to enable users to plan for demand on a macro scale, which is a goal of O'Brien (see column 1 lines 16-23).

As per claim 2, Stuart et al. teach:

The method of claim 1, wherein the complex system is a contact center, the at least one work load includes at least one queue, and wherein the at least one capability includes a skill set (column 7 lines 53-67, column 8 lines 36-62, column 11 lines 36-54, column 12 lines 21-41, and column 15 lines 24-43; where a work load is defined. The work load is the call volume where the volume is associated with a call queue. Agent profiles are defined. Agent profiles contain agent cost profiles, agent education, and agent training records. These variables are the same as the agent's capabilities. The complex system is a call center which is the same as a contact center.).

As per claim 3, Stuart et al. teach:

The method of claim 2, wherein the at least one performance measure includes an efficiency percentage, and wherein applying the plurality of agent profiles to the at least one work load includes staffing the at least one queue with the at least one agent profile (see column 15 lines 24-43; where the system optimizes the efficiency of handling incoming calls and optimizes staffing to handle the call volumes and minimize the queue.).

As per claim 7, Stuart et al. teach:

The method of claim 3, wherein the characteristics further include:

Shrinkage, wherein shrinkage comprises various categories of time for which an employee is paid, but during which the agent does not work (see column 5 lines 10-14 and column 18 lines 1-45; where productivity is measured and agent wages are considered. Productivity is the measure of the amount of work an agent does over a period of time.);

Burden, wherein burden comprises various categories of expenses associated with the agent including benefit expenses (see column 18 lines 1-45; where various categories of expenses includes an agent cost.); and

Wage (see column 18 lines 1-45; where wage is a characteristic measured.).

As per claim 8, Stuart et al. teach "specifying characteristics further comprises a time period required to bring an agent hired into the profile to a predefined level of efficiency" (see column 10 lines 5-23 and column 11 lines 55-67; where increasing the skill level of agents is done.). Stuart et al. fail to explicitly teach "hiring into a profile". It is old and well-known in the art to hire agents into a profile. The advantage of hiring into

a profile is that the personnel needed to achieve an optimal level of staffing can be accomplished. It would have been obvious, at the time of the invention, to one of ordinary skill in the art to incorporate the feature of "hiring into a profile" to the Stuart et al. system in order to meet the required number of agents needed for optimally handling a work load, which is a goal of Stuart et al. (see column 4 lines 55-57).

As per claim 9, Stuart et al. teach:

The method of claim 3, further comprising displaying the calculated effect of the long-range staffing plan, comprising displaying for each queue of the at least one queue for each of a plurality of predefined time periods (see column 19 lines 61-67 and column 20 lines 1-25; where the long-range plan can be simulated and monitored for specific time periods.):

A contact volume (see column 15 lines 55-67 and column 16 lines 1-5; where contact volume is a constraint in the optimization algorithm.);

A predefined average handling time goal (see column 15 lines 55-67 and column 16 lines 1-19; where call handling goals are determined by adjusting costs or maximizing utility.);

An actual service level (see column 11 lines 9-18 and column 21 lines 43-67; where actually service level is monitored to see if it reaches a critical level); and

A required service level (see column 12 lines 42-65; where service levels are predetermined.).

As per claim 14, Stuart et al. teach "the contact center comprises multiple queues and multiple types of contact media, wherein the skill set includes skills across multiple

queues and multiple contact media" (see column 9 lines 23-67 and column 10 lines 1-23; where the call center has multiple queues and multiple teams to handle specific queues.). Stuart et al. fail to explicitly teach "skills across multiple media". It is old and well-known in the art to use multiple types of media and have agents with skills in multiple media. The advantage using multiple media and agents with skills in multiple media is that it enhances the call center's ability to handle more load by optimally distributing load. It would have been obvious, at the time of the invention, to one of ordinary skill in the art to incorporate the feature of using multiple media and having agents with skills in multiple media in order to enable the call center to handle load by optimally distributing load, which is a goal of Stuart et al. (see column 5 lines 7-10).

As per claim 15, Stuart et al. teach:

The method of claim 14, wherein iteratively calculating effects of adding the additional other agents taking into account each agent already added includes assigning additional other agents across multiple queues and multiple contact media (see column 15 lines 44-67, column 16 lines 1-19, column 17 lines 14-30, and column 19 lines 40-67; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Linear programming optimization is the same as iterative summation.).

Claim 15 further recites limitations already addressed by the rejection of claim 14; therefore the same rejection applies to this claim.

Claims 16-17, 20, and 22 recite a "system for long-range staffing planning in a contact center, wherein the multi-contact center processes a plurality of contact queues comprising a plurality of contact media taught by Stuart et al. (see column 1 lines 10-15). Claims 16-17, 19-20, 22-23, 24-25, and 27 further recite limitations already addressed by the rejections of claims 1-3, 7, and 9-10; therefore the same rejections apply to these claims as well.

Claims 21 and 27 recite the same limitations already addressed by the rejections of claims 8, 14, and 15; therefore the same rejections apply to these claims.

Claims 30-31, 33-34, and 36 recite "an electromagnetic medium containing executable instructions which, when executed in a processing system, cause the system to generate effects of a proposed long-range staffing plan for a contact center" taught by Stuart et al. (see column 6 lines 10-45). Claims 30-31, 33-34, and 36-39 further recite limitations already addressed by 1-3, 7, 9-10, 16-17, 19-20, 22-23, 24-25, 27-29; therefore the same rejections apply to these claims.

Claims 41 and 42 recite the same limitations already addressed by the rejections of claims 8, 14, and 15; therefore the same rejections apply to these claims.

As per claims 50-52 and 55-59, Stuart teaches the attributes specifying a change in agents of a team size, team configuration, and agent tour (see column 8 lines 6-37). Stuart does not expressly teach the specific data recited in claims 50-52 and 55-59; however, these differences are only found in the non-functional descriptive material and are not functionally involved in the steps recited nor do they alter the recited structural elements. The recited method steps would be performed the same regardless of the

specific data. Further, the structural elements remain the same regardless of the specific data. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, *see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP ∋ 2106.*

As per claim 53, Stuart teaches:

The system of claim 16, wherein calculating an effect of adding the first employee further comprises calculating the effect of adding the first employee independent of adding any other employees, and wherein calculating an effect of adding the another employee further comprises calculating the effect of adding the another employee independent of adding any other employees (see column 15 lines 44-67, column 16 lines 1-19, column 17 lines 14-30, and column 19 lines 40-67; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Linear programming optimization is the same as iterative summation. Linear optimization iteratively adds values and determines the effect of adding the values, until an optimal value is determined.).

As per claim 54, Stuart teaches:

The system of claim 16, wherein calculating an effect of adding the first employee further comprises calculating the effect of adding the first employee as if the first employee is the only employee being added, and wherein calculating the effect of adding the another employee as if the another employee is the only

employee being added (see column 15 lines 44-67, column 16 lines 1-19, column 17 lines 14-30, and column 19 lines 40-67; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Linear programming optimization is the same as iterative summation. Linear optimization iteratively adds values and determines the effect of adding the values, until an optimal value is determined.).

8. Claim 13, 26, 35, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuart et al. (U.S. Patent No. 6639982) in view of O'Brien (U.S. Patent No. 6587831) and in further view of Kintner et al. (U.S. Patent No. 6732079).

As per claim 13, Stuart et al. fail to explicitly teach "calculating estimated training costs of increasing an employees level of performance". Kintner et al. teaches "calculating estimated costs of increasing an employees level of performance" (see Kintner column 2 lines 56-67 and abstract; where the cost of training employees is considered and incorporated in an algorithm for a staffing plan.). The advantage of this feature is that it enables an agent to efficiently utilize idle time in a manner that is beneficial to the company. It would have been obvious, to one of ordinary skill in the art, to combine the feature of "calculating estimated costs of increasing an employees level of performance" in order to enable an agent to efficiently utilize idle time in a manner that is beneficial to the company, which is a goal of Stuart et al. (see column 5 lines 10-14).

Claims 26, 35, and 40 recite limitations already addressed by the rejection of claim 13; therefore the same rejections apply to these claims.

9. Claims 43-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuart et al. (U.S. Patent No. 6639982) in view of O'Brien (U.S. Patent No. 6587831) and in further view of Castonguay et al. (U.S. Patent No. 5911134).

As per claim 43, Stuart et al. teach "wherein the at least one workload comprises a plurality of queues" (see column 9 lines 23-67 and column 10 lines 1-23; where the call center has multiple queues and multiple teams to handle specific queues.), "wherein each queue is associated with a remaining load and a net staffing" (see column 9 lines 24-55; where each queue is associated with a remaining load and each queue is handled by a specific team), "wherein each agent profile is associated with a plurality of Erlang-by-queue factors" (see column 1 lines 24-49; where each agent is associated with Erlang factors). Stuart et al. fail to explicitly teach "wherein the calculating further comprises: redistributing work among agent profiles by computing the plurality of Erlang-by-queue factors for each agent profile; recalculating load remaining for each of the plurality of queues by computing the net staffing and remaining load associated with each queue; and repeating the redistributing work and recalculating load steps until the available work of agents in all agent profiles has been distributed". Castonguay et al. teach "redistributing work among agent profiles by computing the plurality of Erlang-by-queue factors for each agent profile" (see Castonguay column 11 lines 12-67 and column 12 lines 1-61; where work is redistributed by computing Erlangs numbers. The Erlangs factors include call rates, average call handling time, and service level from call rates.); recalculating load remaining for each of the plurality of queues by computing the net staffing and remaining load associated with each queue" (see Castonguay column

11 lines 12-67 and column 12 lines 1-61; where load is recalculated based on a predetermined service level and an adjusted number of available agents.); "and repeating the redistributing work and recalculating load steps until the available work of agents in all agent profiles has been distributed" (see Castonguay column 12 lines 45-67; where all of the computations are redone until a winner is selected.). The advantage of performing these steps is that it enables the call center's ability to handle more load by optimially distributing load. It would have been obvious, at the time of the invention, to one of ordinary skill in the art to combine the steps of "wherein the calculating further comprises: redistributing work among agent profiles by computing the plurality of Erlang-by-queue factors for each agent profile; recalculating load remaining for each of the plurality of queues by computing the net staffing and remaining load associated with each queue; and repeating the redistributing work and recalculating load steps until the available work of agents in all agent profiles has been distributed" taught by Castonguay et al. to Stuart et al. in order to enable the call center to handle load by optimally distributing load, which is a goal of Stuart et al. (see column 5 lines 7-10).

As per claim 44, Stuart et al. teach "wherein each agent profile further is associated with a headcount" (see column 8 lines 7-62; where an agent profile is associated with a team size and the number of agents in a team, which are the same as a headcount.), "an hours-per-month" (see column 12 lines 58-67 and column 13 lines 1-20; where the average standard time worked by an agent over a period of time is determined.), "a number of queues worked by the profile" (see column 9 lines 24-55;

where the number of queues worked by a specific team is determined), "a total effective Erlangs performed by one agent in the agent profile" (see column 1 lines 24-49; where the load per agent is determined), "and wherein the redistributing work step further comprises: Redistributing work among the agent profiles for each agent profile based on the associated headcount" (see column 8 lines 7-62; where an agent profile is associated with a team size and the number of agents in a team, which are the same as a headcount.), "the hours-per-month" (see column 12 lines 58-67 and column 13 lines 1-20; where the average standard time worked by an agent over a period of time is determined.), "the number of queues worked by the profile" (see column 9 lines 24-55; where the number of queues worked by a specific team is determined), "and the total effective Erlangs" (see column 1 lines 24-49; where the load per agent is determined). Stuart et al. fail to teach "by computing the plurality of the plurality of Erlang-by-queue factors". This limitation is addressed by the rejection of claim 43; therefore the same rejection applies to this claim as well.

As per claim 45, Stuart et al. teach:

The method of claim 44, wherein each queue is further associated with a bunching variable (see column 9 lines 24-55; where overflowing calls are not sent to a secondary group at random, but are grouped as overflowing calls designated for the secondary team by the system), wherein each profile is further associated with a plurality of queue scaling factors (see column 9 lines 23-67 and column 10 lines 1-23; where the call center has multiple queues and multiple teams to handle specific queues. The normalized distribution of the load is based on several factors including

the size of the team, skill level of the team, and service level assigned to the team.), and computing the plurality of Erlang-by-queue factors for each agent profile further comprises:

Computing each queue scaling factor based on the corresponding queue bunch factor, the corresponding queue remaining load, and a previous scaling factor (see column 9 lines 24-55; where overflowing calls are not sent to a secondary group at random, but are grouped as overflowing calls designated for the secondary team by the system. The primary team is assigned a threshold and each remaining load beyond the threshold is designated by the system to the secondary team.);

Claim 45 further recites limitations already addressed by the rejections of claims 43 and 44; therefore the same rejections apply to this claim as well.

As per claim 46, Stuart et al. teach:

The method of claim 43, wherein each queue is further associated with an expected service level (see column 12 lines 42-65; where service levels are predetermined.), a call volume (see column 15 lines 55-67 and column 16 lines 1-5; where contact volume is a constraint in the optimization algorithm.), an average handle time (see column 15 lines 55-67 and column 16 lines 1-19; where call handling goals are determined by adjusting costs or maximizing utility.), a remaining load and a net staffing (see column 9 lines 24-55; where each queue is associated with a remaining load and each queue is handled by a specific team), wherein the recalculating load step further comprises:

Recalculating load remaining for each of the plurality of queues by computing the net staffing and remaining load associated with each queue (see column 9 lines 24-55; where each queue is associated with a remaining load and each queue is handled by a specific team), wherein the remaining load is based on the queue call volume (see column 15 lines 55-67 and column 16 lines 1-5; where contact volume is a constraint in the optimization algorithm.), the queue average handle time (see column 15 lines 55-67 and column 16 lines 1-19; where call handling goals are determined by adjusting costs or maximizing utility.), and the queue expected service level (see column 12 lines 42-65; where service levels are predetermined.).

Claim 46 further recites limitations already addressed by the rejection of claim 43; therefore the same rejection applies to this claim.

As per claim 47, Stuart et al. teaches:

The method of claim 46, wherein the recalculating load step further comprises:

Calculating the queue expected service level based on the queue net staffing, the queue average handle time, a queue call rate, and a queue goal-seconds (see column 9 lines 24-55, column 15 lines 55-67, and column 16 lines 1-60; where the expected service level is determined using several factors, including queue average call time, queue call rate, queue call abandon rate, queue second, and calls per second. Net staffing for each team to handle an expected queue is also determined.).

As per claim 48, Stuart et al. teach:

The method of claim 43, wherein each queue is associated with an occupancy (see column 9 lines 24-55; where the number of agents to handle the queue is determined. Occupancy is defined as the number of agents servicing a queue as per Specification page 17.), wherein agent profile is further associated with a load and an hours-per-month (see column 9 lines 24-55, column 12 lines 58-67, and column 13 lines 1-20; where the number of agents to handle the queue is determined. The average standard time worked by an agent over a period of time is determined.), and further comprising the step of:

For each agent profile, iterating through each queue for which the profile is set to answer and adding the agent profile load the remaining load associated with the iterated queue, multiplied by a percentage of the net staffing associated with the iterated queue to which the agent profile contributes (see column 15 lines 44-67, column 16 lines 1-19, column 17 lines 14-30, and column 19 lines 40-67; where the user has the ability to adjust the number of agents and teams. The agent costs are determined for each period of time based on expected uncertain loads. Linear programming optimization is the same as iterative summation. The constraints are used to determine the optimal distribution. Simulation of the optimal distribution is done to determine the best long-range plan.); and

For each agent profile, computing the agent profile occupancy by dividing the agent profile load by the agent profile headcount multiplied by the agent profile hours-per-month (see column 12 lines 58-67 and column 13 lines 1-43; where an agent cost is determined. The agent cost is determined by computing the agent

standard work time and wages. The agent standard work time is also used to determine the agent occupancy.).

Stuart et al. fail to explicitly teach "initializing each agent profile load to zero". It is old and well-known in the art to initialize an agent profile load to zero. When determining the optimal distribution of load amongst a plurality of agents, the stochastic programming is known to being at zero. The advantage of "initializing each agent profile load to zero" is that it enables a user to more accurately distribute the load amongst agents. It would have been obvious, at the time of the invention, to one of ordinary skill in the art to incorporate "initializing each agent profile load to zero" to the Stuart et al. system in order to more accurately distribute load amongst agent profiles, which is a goal of Stuart et al. (see column 5 lines 7-10).

As per claim 49, Stuart et al. teach:

The method of claim 48, further comprising the step of:

Computing an occupancy for each queue by dividing queue remaining load by queue net staffing (see column 9 lines 24-67; where a threshold for each team is determined. The remaining load beyond the threshold is the queue that is assigned to a second team. This remaining load is the queue for the second team and therefore is the same as the occupancy.); and

For each agent profile, bounding the agent profile occupancy by the highest value of queue occupancy in the plurality of queues (see column 9 lines 24-67; where a threshold load for each team is determined. The threshold is the highest value of queue that the team can handle.).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalyan K. Deshpande whose telephone number is (571)272-5880. The examiner can normally be reached on M-F 8am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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